THE CLAIMS

What is claimed is:

1. A method of producing an apomictic plant from sexual plants, the method comprising the steps of:

(a) selecting a first and second sexual plant from an angiospermous plant species, genus, or family, wherein the initiation time of embryo sac formation in the first plant occurs at about the same time as or before megasporogenesis in the second plant relative to the developmental maturity of the nongametophytic ovule and ovary tissues;

(b) hybridizing the first plant and second plant;

(c) recovering seed therefrom;

(d) sowing the seed, and

(e) selecting a hybrid plant that is apomictic.

2. The method of claim 1, further comprising the step of doubling the chromosome number of the first and/or second plant prior to hybridization or doubling the chromosome number of one or more of the hybrid plants.

3. The method of claim 2, wherein the step of doubling the chromosome number is accomplished by B_{III} hybridization or by treating the plant with a spindle inhibitor.

4. The method of claim 1, wherein the apomictic plant selected is euploid or aneuploid.

5. The method of claim 1, wherein the nongametophytic ovule and ovary tissues comprise at least one member of the group consisting of nucellus, integument, pericarp, hypanthium, and pistil wall.

6. The method of claim 1, wherein the step of hybridizing the first plant and second plant is accomplished by somatic cell hybridization.

7. The method of claim 1, wherein the first plant expresses a flowering response to various photoperiods that is different from that of the second plant.

8. The method of claim 7, wherein the differences in flowering responses are measured in days to flowering.

9. The method of claim 7, wherein the first plant and second plant are of a different flowering response type selected from the group consisting of short-day plants, long-day plants, dual-day-length plants, intermediate-day-length plants, ambiphotoperiodic plants, and day-neutral plants.

10. The method of claim 1, wherein the first plant and/or the second plant are obtained by plant breeding.

11. The method of claim 1, wherein the apomictic plant selected is polyembryonic.

12. The method of claim 1, wherein the first plant and second plant are selected from a family that exhibits apomixis in nature.

13. An apomictic plant produced according to the method of claim 1, or apomictic progeny obtained from the apomictic plant.

14. The apomictic plant of claim 13, wherein the plant is an allopolyploid, segmental allopolyploid, or autopolyploid.

15. A method of producing an apomictic plant from sexual plants, the method comprising the steps of:

(a) screening plants within an angiospermous plant species, genus, or family for differences in the timing of initiation of megasporogenesis and embryo sac formation relative to the developmental maturity of nongametophytic ovule and ovary tissues among the plants;

(b) selecting a first plant and a second plant, wherein the initiation time of embryo sac formation in the first plant occurs at about the same time as or before megasporogenesis in the second plant relative to the developmental maturity of nongametophytic ovule and ovary tissues;

(c) hybridizing the first and second plants;

(d) recovering seed therefrom;

(e) sowing the seed, and

(f) selecting a hybrid plant that is apomictic.

16. The method of claim 15, wherein the nongametophytic ovule and ovary tissues comprise at least one member of the group consisting of nucellus, integument, pericarp, hypanthium, and pistil wall.

17. The method of claim 15, further comprising the step of doubling the chromosome number of the first and/or the second plants prior to hybridization or doubling the chromosome number of the hybrid plants.

18. The method of claim 17, wherein the step of doubling the chromosome number is accomplished by B_{III} hybridization or by treating the plant with a spindle inhibitor.

19. The method of claim 15, wherein the apomictic hybridized plant selected is euploid or aneuploid.

20. The method of claim 15, wherein the step of hybridizing the first plant and second plant is accomplished by somatic cell hybridization.

21. The method of claim 15, wherein the first plant expresses a flowering response to various photoperiods that is different from that of the second plant.

22. The method of claims 21, wherein the first plant and second plant are of a different flowering response type selected from the group consisting of short-day plants, long-day plants, dual-day-length plants, intermediate-day-length plants, ambiphotoperiodic plants, and day-neutral plants.

23. The method of claim 21, wherein the differences in flowering responses are measured in days to flowering.

24. The method of claim 15, wherein the first plant and/or the second plant are obtained by plant breeding.

25. An apomictic plant produced according to the method of claim 15, or apomictic progeny obtained from the apomictic plant.

26. The apomictic plant of claim 25, wherein the plant is euploid or aneuploid and is an allopolyploid, segmental allopolyploid, or autopolyploid.